

REMARKS

Applicant wishes to thank the Examiner for the time and careful consideration of this case. Claims 1-3, 10-18, 20-26, 66-85, and 96 are pending in the application. Claims 4, 19, 27-65, 86-95 and 97-109 have been cancelled without prejudice in response to the restriction requirement dated September 27, 2002. The Examiner has allowed Claims 66-84, and those claims should therefore be passed to issue. Applicant presents the following additional remarks relating to claims 1-3, 10-18, 20-26, 85 and 96 to explain the amendments listed above.

Rejections under 35 U.S.C. 102(b) to *Adams*

The Examiner has rejected claims 1, 13, 25, and 26 under 35 U.S.C. 102(b) as allegedly being anticipated by *Adams* in U.S. Patent No. 5,422,146. According to the Examiner, *Adams* discloses electrostatic coating (e.g., see col. 3, lines 20-25); a marking layer; and a laser wavelength that is selected to be absorbed by the marking layer (see col. 2, lines 37-39, and col. 3, lines 4-7).

Adams discloses a material electrostatically applied to the surface of a work piece which when irradiated by a suitable source of radiation, crosslinks to forms a gel. In *Adams* the irradiated material will “stick” to the workpiece due to the gelling process (col. 3, lines 20-30), and it must be baked in a baking oven (col. 4, lines 3-5 and claim 1). In the alternative, for thermally sensitive materials the source of radiation must be sufficient to cause complete crosslinking of the material (col. 4, lines 35-40).

Claim 1 of Applicant’s instant invention does not require the additional step that a gel be baked in a baking oven as required by *Adams*, nor does it require that the radiation source be sufficient to cause complete crosslinking of the material. Rather, Applicant’s specification (page 13, lines 20-25) states that the marking material will “contain at least one component that will absorb sufficient energy to cause the marking material to fuse or sinter and create a

permanently bonded marking atop the substrate.” Applicant’s claim 1 recites a process wherein “irradiating said layer with a radiant energy beam having a wavelength selected to excite said energy absorbing material.... thereby forming a marking layer atop the substrate.” In the instant invention, Applicant’s bonded marking is not anticipated by the *Adams* mark, which sticks to the substrate and is completely cross linked by intense irradiation and/or baking. Applicant has amended claim 1 to emphasize these distinctions. Accordingly, Applicant respectfully submits that the Examiner’s rejection of claim 1 should be withdrawn. Since claims 13, 25, and 26 also depend from claim 1, Applicant submits that the Examiner’s rejection for these claims should also be withdrawn.

Rejections under 35 U.S.C. 103(b)

Claim 2

The Examiner has rejected claims 10-14 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Adams* in view of *Condit et al.* in U.S. Patent No. 5,919,853. As described above, *Adams* does not disclose the formation of a marking layer with a low-level energy source and without baking. Amended Claim 1 emphasizes these features. *Condit et al.* does not disclose these additional features. Claim 2 depends from claim 1. Accordingly, Applicant respectfully submits that the Examiner’s rejection of claim 2 should be withdrawn.

Claims 10-14

The Examiner has rejected claims 10-14 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Adams* in view of *Balliet, Jr. et al.* in U.S. Patent No. 5,359,176. As described above, *Adams* does not disclose the formation of a marking layer with a low-level energy source and without baking. Amended Claim 1 emphasizes these features. *Balliet, Jr. et al.* does not disclose these additional features. Claims 10-14 all depend from claim 1.

Accordingly, Applicant respectfully submits that the Examiner's rejection of claims 10-14 should be withdrawn.

Claims 13, 15, 16 and 21

The Examiner has rejected claims 13, 15, 16 and 21 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Adams* in view of *Boden et al.* in German Patent No. 201,136. As described above, *Adams* does not disclose the formation of a marking layer with a low-level energy source and without baking. Amended Claim 1 emphasizes these features. *Boden et al.* does not disclose these additional features. Claims 13, 15, 16 and 21 all depend from claim 1. Accordingly, Applicant respectfully submits that the Examiner's rejection of claims 13, 15, 16 and 21 should be withdrawn.

Claims 1 and 18

The Examiner has rejected claims 1 and 18 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Adams* in view of *Boden et al.* As described above, *Adams* does not disclose the formation of a marking layer with a low-level energy source and without baking. Amended Claim 1 emphasizes these features. *Boden et al.* does not disclose these additional features. Claim 18 depends from claim 1. Accordingly, Applicant respectfully submits that the Examiner's rejection of claims 1 and 18 should be withdrawn.

Claim 17

The Examiner has rejected claim 17 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Adams* in view of *Boden et al.* As described above, *Adams* does not disclose the formation of a marking layer with a low-level energy source and without baking. Amended Claim 1 emphasizes these features. *Boden et al.* does not disclose these additional features.

Claim 17 depends from claim 1. Accordingly, Applicant respectfully submits that the Examiner's rejection of claim 17 should be withdrawn.

Claims 3 and 18

The Examiner has rejected claims 3 and 18 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Adams* in view of *Sakoske* in U.S. Patent No. 5,783,507. As described above, *Adams* does not disclose the formation of a marking layer with a low-level energy source and without baking. Amended Claim 1 emphasizes these features. *Sakoske* does not disclose these additional features. Claims 3 and 18 depend from claim 1. Accordingly, Applicant respectfully submits that the Examiner's rejection of claims 3 and 18 should be withdrawn.

Claim 20

The Examiner has rejected claim 20 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Adams* in view of *Carlblom et al.* in U.S. Patent No. 5,698,269. As described above, *Adams* does not disclose the formation of a marking layer with a low-level energy source and without baking. Amended Claim 1 emphasizes these features. *Carlblom et al.* does not disclose these additional features. Claim 20 depends from claim 1. Accordingly, Applicant respectfully submits that the Examiner's rejection of claim 20 should be withdrawn.

Claims 22 and 23

The Examiner has rejected claims 22 and 23 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Adams* in view of *Luderer et al.* in U.S. Patent No. 3,691,991. As described above, *Adams* does not disclose the formation of a marking layer with a low-level energy source and without baking. Amended Claim 1 emphasizes these features. *Luderer et al.* does not disclose these additional features. Claims 22 and 23 depend from claim 1.

Accordingly, Applicant respectfully submits that the Examiner's rejection of claims 22 and 23 should be withdrawn.

Claim 24

The Examiner has rejected claim 24 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Adams* in view of *Zambounis et al.* in U.S. Patent No. 5,840,449. As described above, *Adams* does not disclose the formation of a marking layer with a low-level energy source and without baking. Amended Claim 1 emphasizes these features. *Zambounis et al.* does not disclose these additional features. Claim 24 depends from claim 1. Accordingly, Applicant respectfully submits that the Examiner's rejection of claim 24 should be withdrawn.

Claims 85 and 96

The Examiner has rejected claims 85 and 96 under 35 U.S.C. 103(a) as allegedly being unpatentable over *Boden et al.* in view of *Ohachi et al.* in Japan Patent No. 5-92,657. According to the Examiner, *Boden et al.* discloses using a layer of glass frit as a marking material that has been electrostatically coated on to a substrate made of glass or ceramic as the marking material but *Boden et al.* does not disclose using an energy absorbing enhancer in the marking material. According to the Examiner, *Ohachi et al.* teaches using a carbon black as an energy absorbing material for light from a Nd:YAG laser. In the Examiner's opinion, it would have been obvious to adapt *Boden et al.* in view of *Ohachi et al.* to make a sharper mark.

Ohachi et al. teaches that a Nd:YAG laser beam applied to the surface of a molded product composed of a thermoplastic resin composition containing 0.01% to 1 wt% of carbon black or to the surface of the molded product coated with the resin composition to perform marking. *Ohachi et al.* further discloses (in paragraph 0007) that carbon dioxide lasers can cause degradation of the substrate or marking layer.

The combination the Examiner has suggested would require that the carbon black energy absorber be incorporated into the substrate of *Boden et al.* for marking, or that a composition of the substrate and carbon black energy absorber be applied to the substrate of *Boden et al.* for marking. *Ohachi et al.* teaches that high-power carbon dioxide lasers can cause degradation of the substrate or marking layer (paragraph 0007), and Applicant's instant disclosure, p. 16, lines 21-25, teaches the disadvantages of carbon dioxide laser being used to thermally shock substrate materials to form markings. It would be difficult without undue experimentation to know if the wavelength and power of Boden's 20-200 watt carbon dioxide laser source would also result in degradation of the ceramic or glass substrate with a glass frit incorporating a carbon black energy absorber. There is not a reasonable chance that the combination that the Examiner has suggested would result in the method of claims 85 and 95 without damage to the substrate. Applicant has amended claims 85 and 96 to emphasize the use of a low-powered laser in the claimed invention. It is respectfully submitted that amended claims 85 and 95 are patentable over *Boden et al.* in view of *Ohachi et al.* and that the Examiner's rejection should be withdrawn.

In view of the remarks presented above, it is believed that pending claims 1-3, 10-18, 20-26, 66-85, and 96 are in condition for allowance and notice to such effect is respectfully requested. Although Applicant believes no fees are due, the Commissioner is hereby authorized to charge my deposit account No. 50-0436 for any fees that may be due in connection with this response. Should the Examiner have any questions regarding these remarks, the Examiner is invited to initiate a telephone conference with the undersigned.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read 'JMS', with a long horizontal flourish extending to the right.

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Date: October 21, 2003

CERTIFICATE OF MAILING/TRANSMISSION (37 C.F.R. 1.8(a))

APPLICANT: Paul W. Harrison

TITLE: High Contrast Surface Marking using Irradiation of
Electrostatically Applied Marking Materials

ATTORNEY REF: 122656.121

SERIAL NO. 09/880,391

DATE OF DEPOSIT: October 21, 2003

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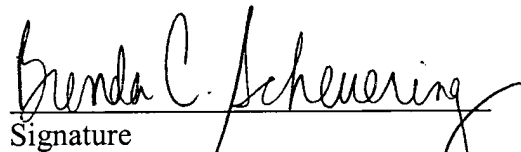
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